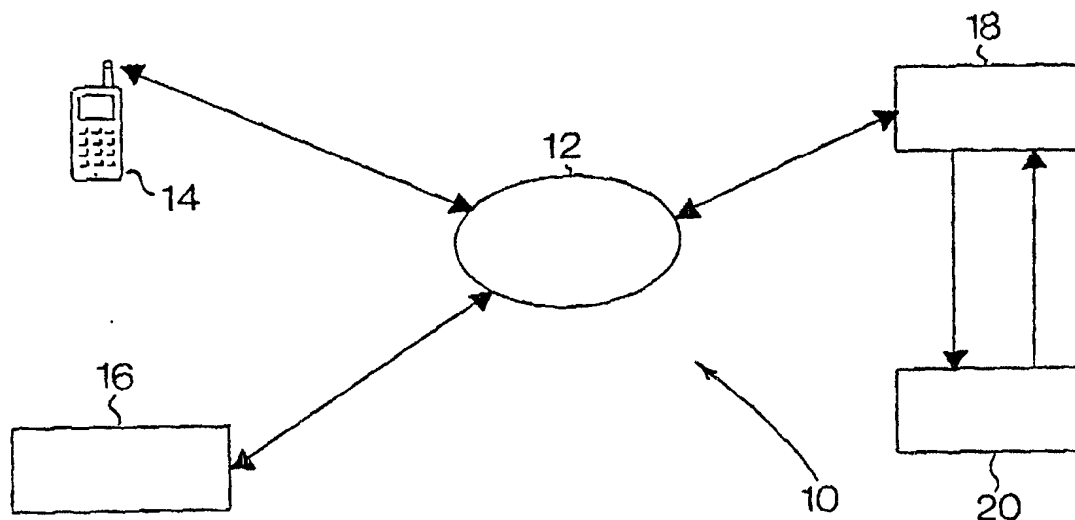




## INTERNATIONAL APPLICATION PUBLISHED UNDER THE PATENT COOPERATION TREATY (PCT)

<b>(51) International Patent Classification <sup>7</sup> :</b> <b>G07F 7/10, H04Q 7/22 // G07F 19/00</b>	<b>A1</b>	<b>(11) International Publication Number:</b> <b>WO 00/58921</b> <b>(43) International Publication Date:</b> 5 October 2000 (05.10.00)
<b>(21) International Application Number:</b> PCT/IB99/00546 <b>(22) International Filing Date:</b> 30 March 1999 (30.03.99) <b>(71)(72) Applicant and Inventor:</b> ATTIEH, Mark, Russell [ZA/ZA]; 24 Second Avenue, 2198 Houghton (ZA). <b>(74) Agents:</b> MOUBRAY, Hugh, Robert et al.; Spoor and Fisher, P.O. Box 41312, 2024 Craighall (ZA).		<b>(81) Designated States:</b> AE, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, CA, CH, CN, CU, CZ, DE, DK, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MD, MG, MK, MN, MW, MX, NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TR, TT, UA, UG, US, UZ, VN, YU, ZA, ZW, ARIPO patent (GH, GM, KE, LS, MW, SD, SL, SZ, UG, ZW), Eurasian patent (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European patent (AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE), OAPI patent (BF, BJ, CF, CG, CI, CM, GA, GN, GW, ML, MR, NE, SN, TD, TG).  <b>Published</b> <i>With international search report.</i>

(54) Title: A METHOD OF CONDUCTING FINANCIAL TRANSACTIONS



## (57) Abstract

A method of conducting real time, on-line financial transactions includes operating at least one communication network (12) which can communicate with first and second communication devices (14, 16) having first and second electronic addresses respectively, the communication network (12) being in communication with one or more databases (20) which contain details of first and second accounts, receiving information from the first communication device (14), which information includes details of transfer to be made into the second account from the first account, communicating a signal to interrogate the first account to determine if the transfer can be made, and if the transfer can be made, debiting the first account with the amount of the transfer, and crediting the second account with the amount of the transfer.

**FOR THE PURPOSES OF INFORMATION ONLY**

Codes used to identify States party to the PCT on the front pages of pamphlets publishing international applications under the PCT.

AL	Albania	ES	Spain	LS	Lesotho	SI	Slovenia
AM	Armenia	FI	Finland	LT	Lithuania	SK	Slovakia
AT	Austria	FR	France	LU	Luxembourg	SN	Senegal
AU	Australia	GA	Gabon	LV	Latvia	SZ	Swaziland
AZ	Azerbaijan	GB	United Kingdom	MC	Monaco	TD	Chad
BA	Bosnia and Herzegovina	GE	Georgia	MD	Republic of Moldova	TG	Togo
BB	Barbados	GH	Ghana	MG	Madagascar	TJ	Tajikistan
BE	Belgium	GN	Guinea	MK	The former Yugoslav Republic of Macedonia	TM	Turkmenistan
BF	Burkina Faso	GR	Greece	ML	Mali	TR	Turkey
BG	Bulgaria	HU	Hungary	MN	Mongolia	TT	Trinidad and Tobago
BJ	Benin	IE	Ireland	MR	Mauritania	UA	Ukraine
BR	Brazil	IL	Israel	MW	Malawi	UG	Uganda
BY	Belarus	IS	Iceland	MX	Mexico	US	United States of America
CA	Canada	IT	Italy	NE	Niger	UZ	Uzbekistan
CF	Central African Republic	JP	Japan	NL	Netherlands	VN	Viet Nam
CG	Congo	KE	Kenya	NO	Norway	YU	Yugoslavia
CH	Switzerland	KG	Kyrgyzstan	NZ	New Zealand	ZW	Zimbabwe
CI	Côte d'Ivoire	KP	Democratic People's Republic of Korea	PL	Poland		
CM	Cameroon	KR	Republic of Korea	PT	Portugal		
CN	China	KZ	Kazakhstan	RO	Romania		
CU	Cuba	LC	Saint Lucia	RU	Russian Federation		
CZ	Czech Republic	LI	Liechtenstein	SD	Sudan		
DE	Germany	LK	Sri Lanka	SE	Sweden		
DK	Denmark	LR	Liberia	SG	Singapore		
EE	Estonia						

## **A METHOD OF CONDUCTING FINANCIAL TRANSACTIONS**

### **BACKGROUND TO THE INVENTION**

Credit cards are widely used to effect payment. The credit cards are often read by a point of sale terminal which is connected via a telephone line to a banking database. Once a credit card has been read, the point of sale terminal interrogates the banking system database to determine if the card holder has sufficient funds to effect payment.

Another form of card, known as a smartcard, contains a computer chip which can be "loaded" with a certain amount of money. When such a card is used to effect payment, the balance loaded within the computer chip is reduced.

Both the credit card and the smartcard do not automatically provide card holders with details of the balance of their accounts. Furthermore credit card fraud is rife. In many cases, the only form of security associated with credit cards is the signature of the card holder, which can be relatively easily forged.

### **SUMMARY OF THE INVENTION**

According to the invention a method of conducting real time, on-line financial transactions includes operating at least one communication network which can communicate with first and second communication devices having first and second electronic addresses respectively, the communication network being in communication with one or more databases which contain details of first and second accounts, receiving information from the first communication device, which information includes details of a transfer to be made into the second account from the first account, communicating a signal to interrogate the first

- 2 -

account to determine if the transfer can be made, and if the transfer can be made, debiting the first account with the amount of the transfer, and crediting the second account with the amount of the transfer.

The first account is preferably associated with the first communication device and the second account is preferably associated with the second communication device.

Preferably the method includes the step of communicating the fact of the transfer to the first communication device and preferably also to the second communication device.

The one or more databases may be controlled by the person who controls communication network should the communication network also operate as a bank.

In addition to communicating the fact of the payment to the first and second communication devices, the new balances of the first and second accounts may be communicated to the respective communication devices.

The information received by the communication network from the first communication device preferably includes the first electronic address of the first communication device. The one or more databases preferably contain data which associates the first electronic address with the first account, so that upon receipt of the information, the first account can be interrogated. The information received by the communication network from the first communication device may also include a security code, such as a personal identity code. The information may also include details regarding the identity

- 3 -

of the first communication device such as the serial number of the first communication device. Thus if the first communication device has been reported as stolen, the communication network will not process the transaction.

The details of the transfer to be made will include the second account number, the amount of the transfer and may also include a reference to indicate why the transfer was made. However it will be appreciated that if the second electronic address of the second communication device is associated with the second account in the one or more databases, then the second electronic address can be utilized instead of the second account number.

At least the first communication device may contain a subscriber identity module (SIM card) within which the first electronic address is stored. Preferably the second communication device also contains a SIM card within which the second electronic address is stored.

The first communication device may be a telephone, and thus the first electronic address will be the first telephone number. In one form of the invention, the telephone is a cellular telephone, and the communication network is a cellular telephone communication network. In another form of the invention the first communication device is an electronic wallet.

The communication network may consist of a plurality of communication networks. The plurality of communication networks may be cellular telephone networks, fixed wire networks, optical fibre networks or wireless data networks including the world wide web.

- 4 -

The first and second communication devices are preferably digital communication devices.

The second communication device may be a telephone, a point of sale terminal or an electronic wallet.

The information transmitted by the first communication device is preferably a file of data or transaction card which is transmitted via a Short Message Service (SMS). The file of data may have a capacity of at least 160 characters. The file of data is preferably encoded.

According to another aspect of the invention a system for conducting real time, on-line financial transactions includes a communication network which communicates with communication devices and one or more databases containing details of accounts so that when a first communication device transmits a request to make a transfer from a first account to a second account, the communication network communicates a signal to interrogate the one or more databases to determine if funds are available in the first account to effect the transfer, and if the funds are available, making the transfer within the one or more databases from the first account to the second account.

Preferably the communication network communicates the fact of the transfer to the first communication device associated with the first account and preferably also to a second communication device associated with the second account.

According to another aspect of the invention a method of conducting financial transactions including the step of linking a telephone number of a

- 5 -

communication device to at least one bank account within a database controlled by a computer.

### **BRIEF DESCRIPTION OF THE DRAWINGS**

**Figure 1** is a diagram of a system according to a first embodiment of the invention;

**Figure 2** is a diagram of a system according to a second embodiment of the invention; and

**Figure 3** is a diagram of a system according to a third embodiment of the invention.

### **DETAILED DESCRIPTION OF PREFERRED EMBODIMENTS**

Referring firstly to figure 1, a system 10 for conducting real-time, on-line financial transactions includes a cellular communication network 12 which can communicate with a cellular telephone 14, a point of sale terminal 16 and an intermediate database 18 stored within a computer. The database 18 can communicate with a bank's database 20 also stored within a computer.

The telephone number of the cellular telephone is linked with a first bank account number in the intermediate database 18. Likewise the telephone number of the point of sale terminal 16 is linked with a second bank account

- 6 -

in the intermediate database 18. The bank's database 20 contains details of the first and second bank accounts.

A customer who owns the cellular telephone 14 and who wishes to purchase goods from a vendor who operates the point of sale terminal 16, completes a transaction card displayed on the display of the cellular telephone 14. To fill in the transaction card, the customer enters the amount to be paid, the telephone number of the point of sale terminal and a personal identity code. This information is then sent from the cellular telephone 14 to the cellular network 12 in a Short Message System format. The cellular network 12 then communicates with the intermediate database 18 which, because of the link between the cellular telephone number and the first bank account, interrogates the bank's database 20 to determine if there are sufficient funds in the first bank account to effect payment. If sufficient funds are not available, the transaction is cancelled and the fact of the cancellation is communicated to the cellular telephone 14 via the Short Message System. If sufficient funds are available, the first bank account is debited with the relevant amount, and the second bank account is credited with the relevant amount. The fact of the payment is then communicated both to the cellular telephone and to the point of sale terminal via the Short Message System. In addition, the new balances of the first account and the second account are communicated to the cellular telephone and to the point of sale terminal respectively.

It will be appreciated that the system 10 allows a cellular telephone user to use the cellular telephone as for example a credit card, smartcard, debit card, cheque account or a current account, without having to carry around such cards or a cheque book. Thus these banking transactions can be carried out using the cellular telephone.



- 7 -

The customer can subsequently confirm that payment was made from the first account, or determine the new balance of the first account, by entering a personal identity code and/or the telephone number/or first account number on the transaction card. This information is then transmitted to the communication network 12, which will in turn communicate the relevant answer to the cellular telephone 14.

Referring now to figure 2, a system 10.2 for conducting real time, on-line financial transactions between the cellular telephone 14 and a fixed transaction terminal 16.1 is diagrammatically depicted. The fixed transaction terminal 16.1 is connected to a communication network consisting of a wire network and the world wide web 22. The system 10.2 operates in similar fashion to the system 10.1

Referring now to figure 3, a system 10.3 for conducting real time, on-line financial transactions between two cellular telephones 14 and 14.1 is diagrammatically depicted. The system 10.3 operates in similar fashion to the system 10.1, except that the point of sale terminal 16 is replaced by the cellular telephone 14.1.

It will be appreciated that many modifications or variations of the invention are possible without departing from the spirit or scope of the invention.

- 8 -

**CLAIMS**

1. A method of conducting real time, on-line financial transactions including operating at least one communication network which can communicate with first and second communication devices having first and second electronic addresses respectively, the communication network being in communication with one or more databases which contain details of first and second accounts, receiving information from the first communication device, which information includes details of a transfer to be made into the second account from the first account, communicating a signal to interrogate the first account to determine if the transfer can be made, and if the transfer can be made, debiting the first account with the amount of the transfer, and crediting the second account with the amount of the transfer.
2. The method of claim 1 wherein the first account is associated with the first communication device and the second account is associated with the second communication device.
3. The method of claim 1 or claim 2 including the step of communicating the fact of the transfer to the first communication device and to the second communication device.
4. The method of any of the above claims wherein the one or more databases is controlled by the person who controls communication network.

- 9 -

5. The method of any of the above claims including the step of communicating the new balances of the first and second accounts to the respective communication devices.
6. The method of any of the above claims wherein the information received by the communication network from the first communication device includes the first electronic address of the first communication device.
7. The method of claim 6 wherein the one or more databases contain data which associates the first electronic address with the first account, so that upon receipt of the information, the first account can be interrogated.
8. The method of claim 6 or claim 7 wherein the information received by the communication network from the first communication device includes a security code and details regarding the identity of the first communication device.
9. The method of any of the above claims wherein the details of the transfer to be made include the second account number and the amount of the transfer.
10. The method of claim 9 wherein the details of the second account number are provided in the form of the second electronic address which is associated with the second account number in the one or more databases.

- 10 -

11. The method of any of the above claims wherein at least the first communication device contains a subscriber identity module (SIM card) within which the first electronic address is stored.
12. The method of any of the above claims wherein the second communication device contains a SIM card within which the second electronic address is stored.
13. The method of any of the above claims wherein the first communication device is a telephone, and the first electronic address is the first telephone number.
14. The method of claim 13 wherein the telephone is a cellular telephone and the communication network is a cellular telephone communication network.
15. The method of any of claims 1 to 12 wherein the first communication device is an electronic wallet.
16. The method of any of the above claims wherein the communication network consists of a plurality of communication networks.
17. The method of claim 16 wherein the plurality of communication networks are cellular telephone networks, fixed wire networks, optical fibre networks or wireless data networks including the world wide web.

- 11 -

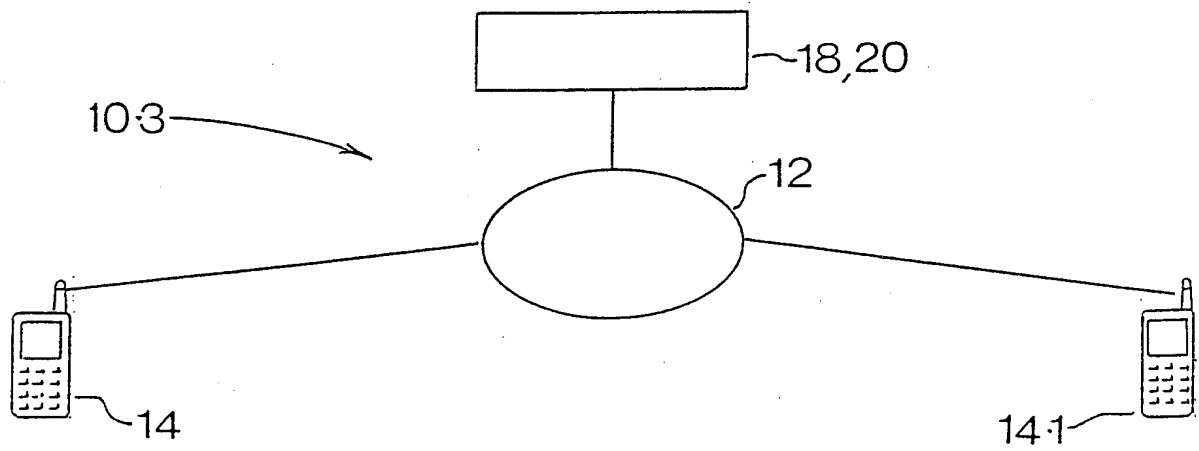
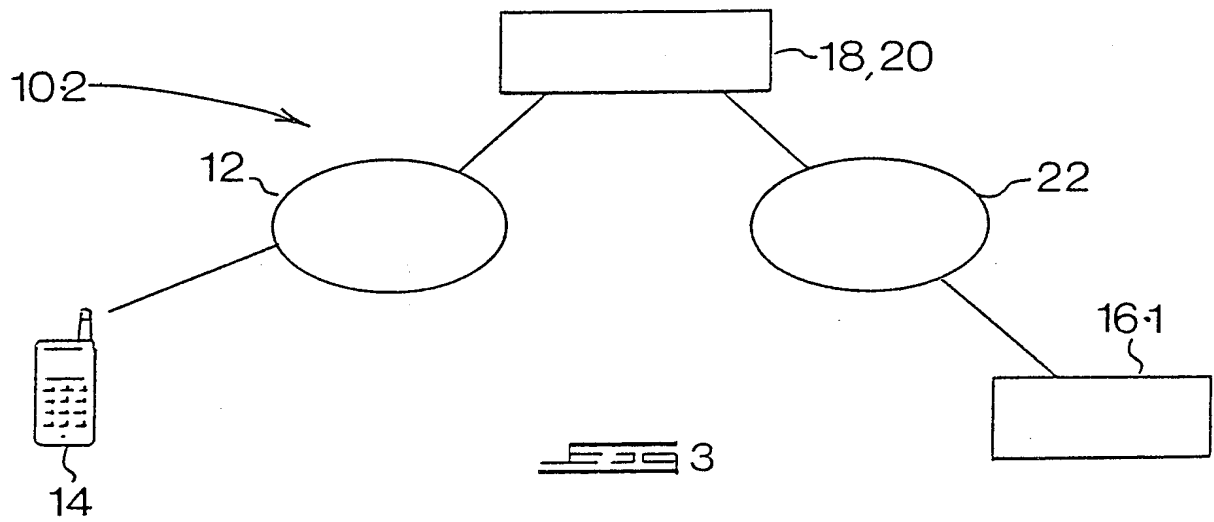
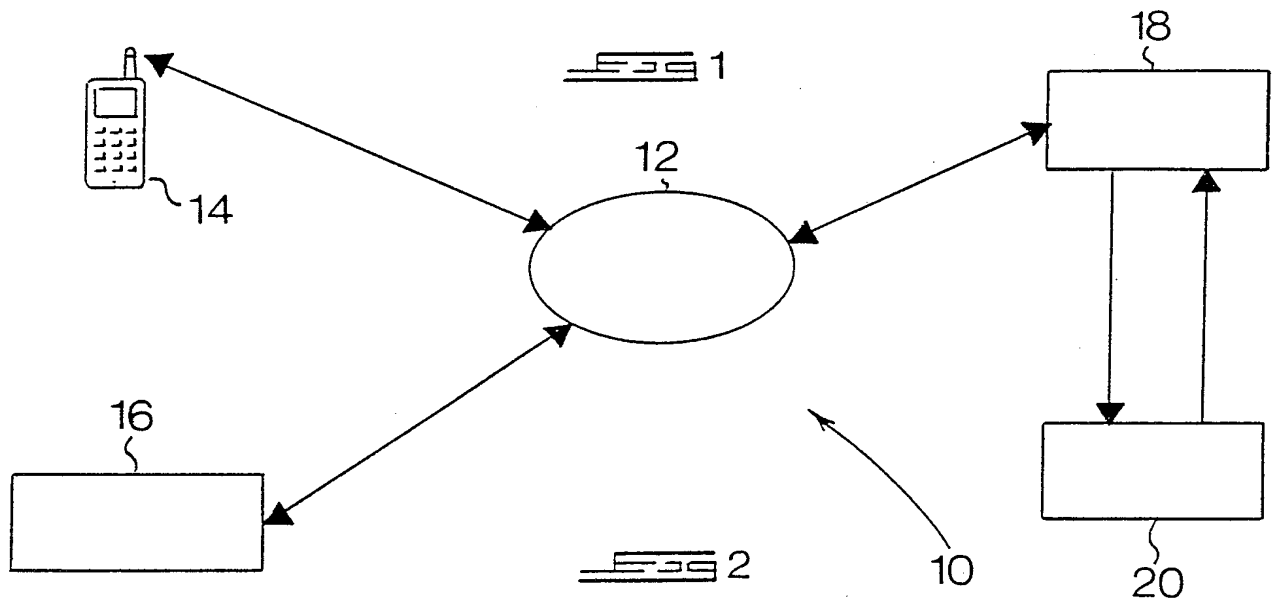
18. The method of any of the above claims wherein the first and second communication devices are digital communication devices.
19. The method of any of the above claims wherein the second communication device is a telephone, a point of sale terminal or an electronic wallet.
20. The method of any of the above claims wherein the information transmitted by the first communication device is a file of data or transaction card and is transmitted via a Short Message Service (SMS).
21. The method of claim 20 wherein the file of data has a capacity of at least 160 characters.
22. The method of claim 20 or 21 wherein the file of data is encoded.
23. A method of conducting real time, on-line financial transactions substantially as herein described and illustrated with reference to the attached drawings.
24. A system for conducting real time, on-line financial transactions including a communication network which communicates with communication devices and one or more databases containing details of accounts so that when a first communication device transmits a request to make a transfer from a first account to a second account, the communication network communicates a signal to interrogate the one or more databases to determine if funds are available in the first

- 12 -

account to effect the transfer, and if the funds are available, making the transfer within the one or more databases from the first account to the second account.

25. The system of claim 24 wherein the communication network communicates the fact of the transfer to the first communication device associated with the first account and to a second communication device associated with the second account.
26. A system for conducting real time, on-line financial transactions substantially as herein described and illustrated with reference to the attached drawings.
27. A method of conducting financial transactions including the step of linking a telephone number of a communication device to at least one bank account within a database controlled by a computer.

1/1



## INTERNATIONAL SEARCH REPORT

International Application No

P. /IB 99/00546

**A. CLASSIFICATION OF SUBJECT MATTER**

IPC 7 G07F7/10 H04Q7/22 //G07F19/00

According to International Patent Classification (IPC) or to both national classification and IPC

**B. FIELDS SEARCHED**

Minimum documentation searched (classification system followed by classification symbols)

IPC 7 G07F H04Q

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practical, search terms used)

**C. DOCUMENTS CONSIDERED TO BE RELEVANT**

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	WO 96 13814 A (VAZVAN BEHRUZ) 9 May 1996 (1996-05-09)  page 3, line 7 -page 5, line 13 page 7, paragraph 2 claim 4; figures 1-3 ---	1-6, 9, 12-14, 18, 20, 23-27
A	WO 97 45814 A (VAZVAN BEHRUZ) 4 December 1997 (1997-12-04)  page 4, line 21 -page 7, line 3 page 8, line 16 -page 9, line 10 figures 1-5 --- -/--	1-3, 6, 8, 9, 12-17, 19, 20, 23-26

☒ Further documents are listed in the continuation of box C.☒ Patent family members are listed in annex.

## \* Special categories of cited documents:

"A" document defining the general state of the art which is not considered to be of particular relevance

"E" earlier document but published on or after the international filing date

"L" document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)

"O" document referring to an oral disclosure, use, exhibition or other means

"P" document published prior to the international filing date but later than the priority date claimed

"T" later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention

"X" document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone

"Y" document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art.

"&amp;" document member of the same patent family

Date of the actual completion of the international search

19 November 1999

Date of mailing of the international search report

26/11/1999

Name and mailing address of the ISA

European Patent Office, P.B. 5818 Patentlaan 2  
NL - 2280 HV Rijswijk  
Tel. (+31-70) 340-2040, Tx. 31 651 epo nl,  
Fax: (+31-70) 340-3016

Authorized officer

Bocage, S



## INTERNATIONAL SEARCH REPORT

International Application No

PCT/IB 99/00546

## C.(Continuation) DOCUMENTS CONSIDERED TO BE RELEVANT

Category	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	WO 98 42173 A (LAHTI SEPPO ENSIO ; TELAMA SAMI PEKKA (FI); FD FINANSSIDATA OY (FI)) 1 October 1998 (1998-10-01)  the whole document ---	1, 9, 11, 16, 17, 20-24, 26, 27
A	WO 98 34203 A (QUALCOMM INC) 6 August 1998 (1998-08-06) page 12, paragraph 2 -page 13, paragraph 4 page 14, paragraph 1 -page 15, paragraph 3 figures 9-13 ---	1, 15
A	US 5 221 838 A (FINKELSTEIN LOUIS D ET AL) 22 June 1993 (1993-06-22) -----	

# INTERNATIONAL SEARCH REPORT

Information on patent family members

International Application No

F /IB 99/00546

Patent document cited in search report		Publication date	Patent family member(s)	Publication date
WO 9613814	A	09-05-1996	FI 945075 A	29-04-1996
			EP 0739526 A	30-10-1996
			FI 962553 A	25-11-1997
			FI 962961 A	28-08-1996
			FI 971009 A	26-04-1997
			FI 971248 A	26-04-1997
			FI 971848 A	30-04-1997
WO 9745814	A	04-12-1997	FI 962553 A	25-11-1997
			FI 971248 A	26-04-1997
			FI 970767 A	20-10-1997
			FI 971009 A	26-04-1997
WO 9842173	A	01-10-1998	FI 971224 A	25-09-1998
			AU 6501998 A	20-10-1998
WO 9834203	A	06-08-1998	AU 5963898 A	25-08-1998
US 5221838	A	22-06-1993	CA 2096730 A,C	25-06-1992
			EP 0564469 A	13-10-1993
			EP 0940760 A	08-09-1999
			JP 6501329 T	10-02-1994
			KR 9707003 B	01-05-1997
			WO 9211598 A	09-07-1992